AMENDMENTS TO THE CLAIMS

1. (currently amended) A system ~~for recharging and communicating with an implantable stimulator having a rechargeable battery,~~ comprising:

an implantable stimulator, comprising:

a rechargeable battery; and

battery charging circuitry for setting the implantable stimulator to a zero volt mode when the rechargeable battery when it is depleted to zero volts and for setting the implantable stimulator to a regular charging mode otherwise; and

an external system, comprising:

a base station;

an antenna/charging coil coupled to the base station that is used to inductively charge the rechargeable battery ~~within the implantable stimulator~~ and to ~~transcutaneously~~ communicate with the stimulator; and

~~first circuitry for driving the antenna/charging coil with a first frequency when used as a charging coil;~~

~~second circuitry for driving the antenna/charging coil with a communication signal when used as a communication coil;~~

a booster coil ~~coupled to the base station that is used to recover the rechargeable battery when it is depleted to zero volts, wherein the booster coil is different from the antenna/charging coil~~ for resetting the battery circuitry from the zero volt mode to the regular charging mode~~; and~~

~~third circuitry for driving the booster coil with a second frequency, wherein the second frequency is different from the first frequency~~.

2. (currently amended) The system of claim 1, ~~wherein the second circuitry accomplishes forward and backward frequency shift keying (FSK) telemetry with the implantable stimulator,~~ wherein the antenna/charging coil communicates with the stimulator using ~~is configured and dimensioned to enable~~ FSK telemetry.

3. (currently amended) The system of claim 2, wherein the antenna/charging coil communicates with the stimulator using ~~second circuitry accomplishes forward~~ on-off keying (OOK) telemetry ~~with the implantable stimulator using the antenna/charging coil~~.

4. (currently amended) The system of claim 1, wherein the external system further ~~comprising:~~ comprises current measuring circuitry for determining power consumption in the antenna/charging coil.

5. (currently amended) The system of claim 1, wherein the external system further ~~comprising~~ comprises:

a printed circuit board (PCB) coupled to the antenna/charging coil and to the booster coil; and

sensing circuitry for sensing temperature included on the PCB.

6. (currently amended) The system of claim 5, wherein the external system further ~~comprising:~~ comprises automatic power shut-off circuitry for automatically shutting off power to the antenna/charging coil when the sensed temperature ~~through the antenna/charging coil~~ exceeds a predetermined level.

7. (canceled)

8. (previously presented) The system of claim 1, wherein the booster coil has a plurality of turns of wire in a plurality of layers wrapped around a coil spool.

9. (currently amended) The system of claim 1, wherein the external system further ~~comprising~~ comprises:

power sensing circuitry for determining power consumption in the booster coil; and

automatic power shut-off circuitry for automatically shutting off power to the booster coil when the power consumption through the booster coil exceeds a predetermined power level.

10. (currently amended) The system of claim 1, wherein the external system further ~~comprising~~ comprises:

a chair pad coupled to the base station;

a printed circuit board (PCB) contained in the chair pad;

sensing circuitry for sensing temperature included on the PCB; and

automatic power shut-off circuitry for automatically shutting off power to the booster coil when the sensed temperature exceeds a predetermined power level.

11. (currently amended) The system of claim 10, ~~wherein the antenna/charging coil has a plurality of turns of wire wrapped around a coil spool~~ further comprising:

a chair pad cable that connects the chair pad to the base station; and

detection circuitry for automatically detecting disconnection of the chair pad cable from the chair pad.

12. (previously presented) The system of claim 10, wherein the chair pad is further comprised of:

a compliant housing made of foam; and

a coil assembly housing which contains the booster coil, the antenna/charging coil and the PCB,

wherein the foam housing encapsulates the coil assembly housing.

13. (currently amended) The system of claim 12, wherein the chair pad is further comprised of [[:]] an exterior slipcover that surrounds the housing.

14. (currently amended) The system of claim 1,

wherein the booster coil is placed in a coil assembly with the antenna/charger coil,

wherein the booster coil and antenna/charging coil are wound over a spool coil in a configuration to present at least one substantially flat side,

wherein the coil assembly is fully encapsulated in an external housing.

15. (previously presented) The system of claim 14, wherein the housing is foam.

16. (canceled)

17. (currently amended) The system of claim 1, wherein the base station includes [[:]] a speaker for generating an audible sound to signal a system event.

18-19. (canceled)

20. (currently amended) The system of claim 1, wherein the ~~system includes the implantable stimulator, and wherein the~~ implantable stimulator is a microstimulator having a maximum length-wise dimension of about 3.5 centimeters and a maximum width of about 5 millimeters.

21. (previously presented) The system of claim 1, wherein the external system further ~~comprising~~ comprises:

a sensor for detecting power levels in the antenna/charging coil; and

a variable output power supply that automatically adjusts downwards when the sensor detects power levels that exceed a predetermined level,

wherein the variable output power supply is contained within the base station.

22-43. (canceled)

44. (currently amended) The system of claim 4, wherein the external system further ~~comprising~~ comprises [[:]] automatic power shut-off circuitry for automatically shutting off power to the antenna/charging coil when the power consumption through the antenna/charging coil exceeds a predetermined level.

45-61. (canceled)

62. (new) A system, comprising:

an implantable medical device, comprising:

a rechargeable battery; and

battery charging circuitry for setting the implantable medical device to a zero volt mode when the rechargeable battery when it is depleted to zero volts and for setting the implantable medical device to a regular charging mode otherwise; and

an external system, comprising:

a charging coil coupled to the base station that is used to inductively charge the rechargeable battery; and

a booster coil for resetting the battery circuitry from the zero volt mode to the regular charging mode.

63. (new) The system of claim 62, wherein the external system further comprises current measuring circuitry for determining power consumption in the charging coil.

64. (new) The system of claim 63, wherein the external system further comprises automatic power shut-off circuitry for automatically shutting off power to the charging coil when the power consumption through the charging coil exceeds a predetermined level.

65. (new) The system of claim 62, wherein the external system further comprises:

a printed circuit board (PCB) coupled to the charging coil and to the booster coil; and

sensing circuitry for sensing temperature included on the PCB.

66. (new) The system of claim 65, wherein the external system further comprises automatic power shut-off circuitry for automatically shutting off power to the charging coil when the sensed temperature exceeds a predetermined level.

67. (new) The system of claim 62, wherein the booster coil has a plurality of turns of wire in a plurality of layers wrapped around a coil spool.

68. (new) The system of claim 62, wherein the external system further comprises:

power sensing circuitry for determining power consumption in the booster coil; and

automatic power shut-off circuitry for automatically shutting off power to the booster coil when the power consumption through the booster coil exceeds a predetermined power level.

69. (new) The system of claim 62, wherein the external system further comprises:

a chair pad for housing the charging coil and the booster coil;

a printed circuit board (PCB) contained in the chair pad;

sensing circuitry for sensing temperature included on the PCB; and

automatic power shut-off circuitry for automatically shutting off power to the booster coil when the sensed temperature exceeds a predetermined power level.

70. (new) The system of claim 69, wherein the chair pad is further comprised of:

a compliant housing made of foam; and

a coil assembly housing which contains the booster coil, the charging coil and the PCB,

wherein the foam housing encapsulates the coil assembly housing.

71. (new) The system of claim 70, wherein the chair pad is further comprised of a slipcover that surrounds the housing.

72. (new) The system of claim 62,

wherein the booster coil is placed in a coil assembly with the charger coil, wherein the booster coil and charging coil are wound over a spool coil in a configuration to present at least one substantially flat side,

wherein the coil assembly is fully encapsulated in an external housing.

73. (new) The system of claim 72, wherein the housing is foam.

74. (new) The system of claim 62, wherein the external system further comprises a speaker for generating an audible sound to signal a system event.

75. (new) The system of claim 62, wherein the implantable medical device is an implantable stimulator.

76. (new) The system of claim 62, wherein the external system further comprises:

a sensor for detecting power levels in the charging coil; and

a variable output power supply that automatically adjusts downwards when the sensor detects power levels that exceed a predetermined level.